MINISTRY OF TRANSPORT AND COMMUNICATIONS
Memo
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AMENDMENT OF THE GOVERNMENT DECREE ON RADIO SPECTRUM USAGE AND THE FREQUENCY ALLOCATION PLAN AND GOVERNMENT DECREE ON THE AUCTIONING OF RADIO SPECTRUM IN THE 25.1–27.5 GHZ SPECTRUM

1. MAIN CONTENTS OF THE BILL

Purpose of the Decrees

Government Decree on Radio Spectrum Usage and the Frequency Allocation Plan

The proposed Decrees enable introduction of the so-called 26 GHz spectrum in mainland Finland, which is a prerequisite for the construction of 5G networks. This spectrum will primarily be used to provide high-speed wireless broadband connections. Introduction of the spectrum would increase the data transfer capacity and speed of communications services and networks, and reduce the transmission delay.

Under section 95 of the Act on Electronic Communications Services (917/2014), the general principles on the use of frequencies for telecommunications, television and radio broadcasting subject to a licence are confirmed by Government Decree. On 18 December 2014, the Government adopted the Government Decree on Radio Frequency Usage and the Frequency Plan (1246/2014), hereinafter the *Spectrum Decree*. The Decree contains provisions on the number of television, radio and mobile communications networks, the frequency spectra to be used for those operations and certain technical specifications. Appended to the Decree is a detailed listing of the restrictions on usage for the frequency spectra reserved for licenced telecommunications operations.

At the moment, the 26 GHz spectrum auction is not provided for in the Spectrum Decree. Before the spectrum auction in June 2020, the frequency bands to be auctioned off should be added to the Spectrum Decree.

The 25.1–27.5 GHz spectrum is to be used for wireless broadband in mainland Finland under national network licences. The licence period is to start on 1 July 2020, as soon as possible after the auction and when the Government has granted the network licences based on the result of the auction arranged by the Finnish Transport and Communications Agency.

Government Decree on Radio Spectrum Auction

Section 11, subsection 3 of the Act on Electronic Communications Services, the Government Decree on Radio Spectrum Auctions in the 25.1–27.5 GHz Spectrum, hereinafter the *Auction Decree*, and section 286 and 287 of the Act on Electronic Communications Services are to provide for the key rules regarding the spectrum auction. The Decree is to provide for the number of frequencies to be allocated, the maximum number of frequencies to be allocated per enterprise, the auction procedure to be used, the opening price of the frequencies being auctioned, the auction entry fee and the licence fee payment schedule.

Under section 6 of the Act on Electronic Communications Services (917/2014), a licence is required to provide a network service that uses radio frequencies in a mobile network

practising public telecommunications. Under section 8 of the Act, licences for new frequency bands in mobile networks may be issued either through a comparative procedure or by auction. Licences for the 25.1–27.5 GHz spectrum are to be auctioned. The Finnish Transport and Communications Agency is to arrange the auction in June 2020.

Section 11 of the Act on Electronic Communications Services provides for issuing network licences through an auction process. Under subsection 1, the Government shall grant a licence to an enterprise, organisation or association that has made the highest valid bid for the frequency band or frequency pair in the auction, unless the licencing authority has especially weighty reasons to suspect that granting the licence to the applicant in question would apparently risk national security. Under subsection 2, the practical arrangements related to the auction are the responsibility of the Finnish Transport and Communications Agency. The auction shall be unbiased, clear, open, non-discriminatory and technology and service neutral.

Under subsection 4, the auction may be conducted using an electronic auction system. The auction may include one or more rounds with ascending bids. All bids submitted in the auction are binding until the end of the auction. Under subsection 5, the Finnish Transport and Communications Agency announces the auction concluded after a bidding round during which no new bids have been placed for any frequency pair or frequency band. Under subsection 6, the highest valid bid placed for each frequency pair or frequency band at the conclusion of the auction wins the auction.

The aforementioned details to be specified by Government Decree depend, inter alia, on the number of frequencies to be distributed and the objectives set for individual auctions. Also, section 12 of the Act provides for further regulations concerning the auction process that may be issued by the Finnish Transport and Communications Agency.

With regard to the auction process, the Act on Electronic Communications Services also provides for participation in the auction (section 13), openness of information in the auction process (section 14) and rejection of auction bids (section 15).

Objectives

Spectrum auction

The objective of auctioning radio spectrum is to ensure the efficient use of frequencies on the Finnish communications markets. In the auction, the value of the frequency bands, i.e. the licence fee, will be determined on a market-driven basis based by the set starting price. The key benefit of the market-driven model is that the process is transparent and simple. Frequencies for mobile communications have been auctioned in Finland since 2009.

Auctioning of the 25.1–27.5 GHz spectrum aims to promote the deployment of 5G, the next-generation mobile technology, in Finland. 5G technology enables faster wireless connections and reduced transmission delay, for example. Deployment of the technology enables new services and business opportunities in various sectors, such as industry. Fast and instantaneous networks can able innovations, such as artificial intelligence, traffic automation and robotisation, and industrial utilisation of the massive Internet of Things. The 5G technology can be used to provide real-time services that require a very short delay. The technology is constantly developing, and its characteristics will be further specified in the near future.

Finland was one the first countries in the world to grant 5G frequencies in the so-called 3.5 GHz spectrum, in the autumn of 2018. In the spectrum auction arranged by the Finnish Transport and Communications Agency, the winners included Telia Finland Oyj, Elisa Oyj ja DNA Plc. The telecommunications operators have used the frequencies to build 5G networks since the beginning of 2019, and all three operators offer 5G services. During the first phase, networks are built in cities, urban areas and transport hubs.

According to the estimates, 5G will be put to wider commercial use in the 2020s. The European Commission has set the following objectives: every Member State will identify at least one major city to be "5G-enabled" by the end of 2020, and all urban areas and major terrestrial transport paths have uninterrupted 5G coverage by 2025.

Deployment of the spectrum and allocation of the auction

The so-called 26 GHz spectrum has been identified as essential for the construction of 5G networks in Europe. Ultra-fast data connections can utilise higher and wider frequency bands, such as 26 GHz. Awarding higher frequencies with suitable technical characteristics to wireless broadband and especially new mobile technology helps to increase the capacity of wireless broadband networks, ensure the availability of ultra-fast wireless broadband and promote development of new digital services in Finland.

The digital infrastructure strategy (Publications of the Ministry of Transport and Communications 2018:7) foresees deployment of the 26 GHz spectrum in 2020. According to the Programme of Prime Minister Sanna Marin's Government, Finland will promote the successful implementation of the digital infrastructure strategy.

Directive (EU) 2018/1972 of the European Parliament and of the Council, of December 2018, establishing the European Electronic Communications Code provides for the deployment of certain 5G frequencies. According to the Directive, the member states shall allow the use of at least 1 GHz of the 24.25–27.5 GHz band by the end of 2020, provided that there is clear evidence of market demand and of the absence of significant constraints for migration of existing users or band clearance. Member States may, however, extend the deadline where justified. The Decrees to be issued assist with the national implementation of the responsibilities under Article 54.

The so-called 26 GHz spectrum covers the frequencies of 24.25–27.5 GHz. This means that the spectrum includes a total of 3,250 MHz of frequencies. The frequencies of 25.1–27.5 GHz would be auctioned for licenced national use. The lower part of the frequency spectrum, 24.25–25.1 GHz, would be excluded from the auction and be reserved for local 5G use.

Due to the technical characteristics, range of radio signals is limited in the 26 GHz spectrum and their ability to pass through structures is poor. As a result, national networks are not cost-effective in this spectrum. The spectrum is most suitable for local or spot 5G networks in areas where large numbers of 5G terminals are used simultaneously and high data transmission capacity is required.

In the future, national mobile networks will not sufficiently meet the specific needs of single operators. Reserving frequencies for local use enables tailoring of networks and adapting them to each intended use. Another benefit of having a local network separated from the national mobile communication networks is security. If, for example,

an industrial plant operates its own network, other parties cannot access sensitive production data.

The characteristics of 5G technology, such as high data transmission capacity and short delay, support automation of industrial process and development of other digitalisation-related business in various sectors of society. The role of local and tailored 5G networks in enabling such development has been recognised internationally. It is foreseen that local solutions will be needed in, for example, industrial plants, harbours, airports, shopping centres, hospitals, agriculture, forestry, energy networks, mines and implementation of in-house networks. Local, tailored networks could be used, for example, for remote control of equipment and machines, industrial robotisation and collection of sensor data.

Several other technologically advanced countries, such as Japan, Germany and Great Britain, have already reserved frequencies for local networks. Sweden is considering allocating a part of the 3.5 GHz frequency range to networks operating on geographically limited areas. The Netherlands is considering reserving frequencies in the 26 GHz band for regional use.

Reserving part of the frequencies for local use helps to ensure that industrial enterprises, municipalities as well as agricultural and forestry entrepreneurs are able to use services enabled by the 5G network in a way that is appropriate and promotes international competitiveness and innovation. The frequencies could be utilised, for example, in areas and specific locations where national telecommunications operators do not consider it commercially feasible to offer services. Local operators could be able to serve customers with specific needs and gain an understanding of their needs for tailored 5G networks. There are several ongoing development projects in Finland that test local network solutions for industrial use and intelligent cities, for example.

All significant network device manufacturers are capable of offering corporate customers the necessary solutions for implementing local 5G networks. In Finland, the market is highly competitive, and entry into the sector is difficult. Competition in the market for local network implementations could increase investments in 5G and promote service development. Local, tailored networks and the traditional, national networks of telecommunications operators complement each other.

Because there is a large number of frequencies over the 26 GHz band, a total of 3,250 MHz, a part of the frequency band could be allocated to local use. This would mean excluding one fourth of the frequencies in the band, i.e. 850 MHz frequencies, from the auction.

Three 800 MHz bands would be auctioned to licenced operations. With regard to the use of frequencies by national telecommunications operators and the quality of the services they offer to end users, it is not technically relevant if they will have access to more than 800 MHz of frequencies. A 800 MHz band enables national telecommunications operators to offer ultra-fast connections. Allocation of too large frequency bands could even lead to inefficient use of the frequencies.

Within the 24.25–25.1 GHz frequency band to be allocated to local use, international agreements and use of frequencies for product development, testing and teaching in certain geographical areas pose restrictions on the use of the frequencies. According to Decision (EU) 2019/784 of the European Commission, within the 24.65–25.1 GHz frequency band, deployment of earth stations in the Fixed Satellite Service (FSS) and

their transmission could cause harmful interference to local operation. When building local networks, this interference can be avoided by keeping a separation distance between the local networks and earth stations. The separation distance will be defined by the Finnish Transport and Communications Agency on a case-by-case basis. At the moment, there are no such earth stations in Finland.

The aforementioned Commission Decision also protects the Earth Exploration Satellite Service operating within the 23.6–24.0 GHz frequency band. To protect the Earth Exploration Satellite Service, the World Radiocommunication Conference (WRC-19) approved technical parameters that are not in line with the aforementioned Commission Decision in November 2019. Because of this, the EU is currently revising the Commission's decision but this will not lead to new restrictions.

In accordance with law, the Decrees to be issued only provide for frequencies used in general telecommunications operations to be auctioned. In other words, the Decrees do not provide for the use of the 24.25–25.1 GHz frequency band that is excluded from the auction and allocated to local use. However, this issue is related to deployment of the 26 GHz frequency band and defining the value of the auctioned frequencies. Against this background, it is useful to outline the justifications and implications of the planned use also in this connection, before the frequency auction.

With regard to the frequency band allocated to local use, the Spectrum Decree only provides for restrictions related to product development, testing and educational purposes. This provides the users of frequencies allocated to product development, testing and educational purposes reasonable assurance on the availability of these frequencies. A frequency band allocated to local networks enables the use of both the narrower frequency band and the unified 400 or 800 MHz frequency band to product development, testing and educational purposes in the geographical areas listed in the Decree. Restrictions related to product development, testing and educational purposes within the 25.1–27.5 GHz spectrum to be auctioned or above this spectrum would not be included in the Spectrum Decree, but the Finnish Transport and Communications Agency could, in individual cases, grant radio licenses in the 27.5–27.9 GHz spectrum under the Act on Electronic Communications Services.

According to section 6 of the Act on Electronic Communications Services, a network licence issued by the Government and a radio licence issued by the Finnish Transport and Communications Agency is required to practise public telecommunications in a mobile network or a mass communication network. Under section 95 of the Act, the use of such frequencies is laid down by the Spectrum Decree. Other use of frequencies only requires a radio licence from the Finnish Transport and Communications Agency, by virtue of sections 39–41.

In December 2019, the Ministry of Transport and Communications circulated the draft Act to amend the Act on the Electronic Communication Services for comments. The draft proposes amending the Act to provide that provision of minor local network services in a mobile network practising public telecommunications in a restricted area would not require a network licence issued by the Government. The aim of the draft Act is to enable minor telecommunications operations, within the 26 GHz spectrum, for example, using a procedure which is less burdensome than a licence issued by the Government.

Minor operations refers to services provided to an unrestricted circle of users in a restricted area where the number of users is limited. Such network services could be offered in harbours or villages, for example. The key concept here is a modest level of

activity and local use, to be assessed on a case-by-case basis, based on the region and the intended use. Also, this operation would only be allowed within a frequency range allocated to such use by the Spectrum Decree. The Finnish Transport and Communications Agency can already grant radio licences for local use to private network solutions, such as network services to a restricted circle of industrial users.

If the Act is amended as proposed, following its entry into force it would be possible to provide in the Decree that the part of the 26 GHz spectrum allocated to local use is a frequency band within which local operation intended for an unrestricted circle of users is allowed under a radio licence issued by the Finnish Transport and Communications Agency. Until then, the Finnish Transport and Communications Agency could issue radio licences to mobile communications networks without a Government licence only for network services offered to a local and restricted circle of users. This applies, for example, to a network service offered in a harbour to a pre-defined circle of users.

Impact of the Decrees

Amendment of the Spectrum Decree would enable the use in mainland Finland of the so-called 26 GHz spectrum that is essential for the building of 5G networks. Technical details of the frequency auction are to be specified in the Government Decree on Radio Spectrum Auctions in the 25.1–27.5 GHz Spectrum.

In Finland, frequencies have been auctioned in 2009 (the so-called 2.5 GHz spectrum), 2013 (the so-called 800 MHz spectrum), 2016 (the so-called 700 MHz spectrum) and 2018 (the so-called 3.5 GHz spectrum). The auctions have promoted the market conformity of frequency allocation, and served as an open and transparent allocation method for frequencies. It is estimated that spectrum auctions in Finland have not had a negative impact on the market structure or competition situation in mobile communications services or wireless broadband markets. Spectrum auctions have also not led to a decline in telecom operators' other business investments.

Deployment of the 800 MHz frequency band auctioned in 2013 and the 700 MHz frequency band auctioned in 2016 improved the quality and availability of high-speed wireless broadband connections in Finland, especially in sparsely populated areas. The previous auctions have not resulted in material changes in the prices of mobile communications services. In practice, consumers have received more and better services than before for the same price. Three established telecom operators have used the 800 MHz and 700 Mhz spectrum to build 4G networks that enable high-speed wireless data transfer. At the moment, the networks cover more than 99% of the population of mainland Finland. The building and introduction of these networks have progressed rapidly.

The 3.5 GHz spectrum auctioned in the autumn of 2018 was deployed at the beginning of 2019, and that further improves the quality of fast wireless broadband connections, for example data transmission speeds. This was the first spectrum in Finland that enables the use of 5G technology. The spectrum has been harmonised almost worldwide to wireless broadband use. This spectrum has been identified as a so-called pioneer band for 5G networks, and its deployment is critical for the construction of 5G networks. Building new networks that use the spectrum enables higher data transfer speeds compared to the current networks because the operators were allocated very wide bands within the spectrum.

Deployment of the 26 GHz spectrum to be auctioned in the summer of 2020 would increase the speed and data transmission capacity of the 5G networks and reduce connection delays. The coverage areas in the spectrum are very small, and it is suited for offering high connection speeds in locations with a very high demand for data use, such as in traffic nodes and public events.

If all frequencies included in the auction are sold, the Government would realise a revenue of at least EUR 21 million. The licence fee, i.e. the auction price, is to be paid in five equal annual instalments. The profits from the auction will be recognised in item 11.19.04 (Certain communications payments) of the Budget.

The Decrees would promote the Government Programme “Inclusive and competent Finland”, and implement the deadlines for the deployment of the band provided for in the European Electronic Communications Code.

2. DETAILED CONTENT OF THE GOVERNMENT DECREE AMENDING THE GOVERNMENT DECREE ON RADIO SPECTRUM USAGE AND THE FREQUENCY ALLOCATION PLAN

Section 9, Terrestrial systems capable of providing electronic communications services

The section provides for the frequency bands available for wireless broadband. Under subsection 3, the spectrum allocated for the use of terrestrial systems capable of providing electronic communication services include the national frequency bands of 2,500–2,690 MHz and the frequency bands of 3,400–3,600 MHz and 3,600–3,800 MHz.

It is proposed that the frequencies to be auctioned within the 26 GHz spectrum be added to the current subsection 3. Under the proposed subsection, the spectrum allocated for the use of terrestrial systems capable of providing electronic communication services also includes the national frequency bands of 2,500–2,690 MHz and the frequency bands of 3,400–3,600 MHz, 3,600–3,800 MHz and 25.1–27.5 GHz. The section would only provide for the part of the 26 GHz spectrum used for telecommunications operations subject to licence.

The so-called 26 GHz spectrum (24.25–27.5 GHz) contains a total of 3.25 GHz (3,250 MHz) of frequencies. The large number of frequencies enables allocating part of the frequency band to local use. With regard to frequencies used by national telecommunications operators and the services they offer to end users, a 800 MHz band enables them to provide ultra-fast connections.

Restrictions on the spectrum usage will be imposed in the relevant operating licences. According to the Commission Implementing Decision (EU) 2019/784, licence holders must make appropriate preparations to protect individual earth stations in the Earth Exploration Satellite Service and in the Space Research Service within the 25.5–27.0 frequency band, as well as individual radio astronomy stations operating in the 23.6–24.0 GHz frequency band. Licence holders must also make appropriate preparations against harmful interference caused by transmissions of individual earth stations in fixed satellite services within the 25.1–25.25 GHz spectrum.

Due to the aforementioned obligations, licenced operations would not be allowed within the safety distance to the aforementioned earth stations and radio astronomy stations defined on a case-by-case basis by the Finnish Transport and Communications Agency. Possible new stations can be located in such a way that they will not place unreasonable or unnecessary restrictions on the licence holder's systems. At the moment, there are no such stations in Finland.

The technical conditions specified in the Commission Decision (EU) 2019/784 protect the Earth Exploration Satellite Service systems operating in the 23.6–24.0 GHz frequency band. In November 2019, the World Radiocommunication Conference (WRC-19) approved technical parameters that are not in line with the Commission Decision to protect the Earth Exploration Satellite Service. Because of this, the EU is currently revising the Commission's decision but this will not lead to new restrictions.

Section 10, Restrictions on the use

This section describes the frequency ranges with restrictions specified in the Annex to the Decree. Under section 95, subsection 3, paragraph 4 of the Act on Electronic Communications Services, this section would include the frequency range 24.25–25.1 GHz, i.e. the range excluded from the spectrum auction, to be reserved for local networks and subject to restrictions related to product development, testing and teaching purposes.

In line with the proposal, the restrictions on the use regarding the frequency ranges referred to above in sections 2, 5, 6, 8 and 9 are included in the Annex. The annex also includes the restrictions on the use regarding the frequency range 24.25–25.1 GHz.

Restrictions on the use of the frequency range excluded from the auction are to be included in the Annex to the Decree to provide potential users assurance on the availability of the frequencies allocated to product development, testing and educational purposes.

A frequency band allocated to local networks enables the use of both narrower frequency bands and the unified 800 MHz or 400 MHz frequency bands to product development, testing and educational purposes in certain geographical areas.

Annex

The Annex provides for the restrictions on use in line with section 10 of the Decree. The following restrictions would be included in the Annex with regard to the frequency band 24.25–25.1 GHz:

Area A: frequencies 24.7–25.1 GHz
Area A1: frequencies 24.3–25.1 GHz
Areas B and C: 24.7–25.1 GHz. Within area C, the use of frequency band is only allowed indoors.
Area D: 24.7–25.1 GHz
Area D1: 24.3–25.1 GHz

The amendment of the Annex would enable the use of the unified frequency band of 800 MHz and 400 MHz to product development, testing and educational purposes in certain geographical areas listed in the Decree. In accordance with law, the use of frequencies

for product development, testing and educational purposes requires a radio licence from the Finnish Transport and Communications Agency.

3. DETAILED CONTENT OF THE GOVERNMENT DECREE ON RADIO SPECTRUM AUCTIONS WITHIN THE 25.1–27.5 GHZ SPECTRUM

Section 1, Scope of application

This section provides for the scope of application of the Decree. The Decree will apply to the auction of the 25.1–27.5 GHz spectrum in mainland Finland. The scope of application of the Decree is limited to this specific spectrum, because the purpose of the Decree, pursuant to section 11 of the Act on Electronic Communications Services, is to provide for certain details regarding the spectrum to be auctioned, such as the starting price for frequency bands and the number of frequency bands to be auctioned off.

Provisions applying universally to all spectrum auctions are contained in the Act on Electronic Communications Services. The Act also provides for the terms of granted network licences; amendment, cancellation and transfer of operating licences; openness of information in the auction process and prohibited cooperation between the participants.

Section 2, Number of frequencies to be granted

The frequency range to be auctioned off will be grouped in frequency bands in such a way as to ensure maximum efficiency in usage. This section specifies how many frequency bands are to be auctioned and how many MHz of frequencies may be allocated to any individual enterprise.

Under subsection 1, a total of three 800 MHz frequency bands are to be auctioned off in the 25.1–27.5 GHz spectrum. In the auction, the right to use frequencies is granted for the enterprise that has made the highest valid bid for the frequency band by the end of the auction.

The auctioned frequencies enable ultra-fast wireless connections, provided that the telecommunications operators have sufficiently wide frequency bands. At an early stage of technical development, 5G networks will operate over a frequency band with a maximum width of 800 MHz. Use of the frequencies requires at least 400 MHz of continuous frequency band, and an 800 MHz frequency band would enable more efficient use of the frequencies. Also, a spectrum with bandwidth exceeding 800 MHz exceeding would not bring relevant additional benefits to the licence holder. This issue is also discussed above, in the section regarding the objectives of the Decrees.

During the preparation, also the possibility of auctioning the frequencies as 400 MHz bands, which is the current minimum requirement for effective use of frequencies within this spectrum, was investigated. In this case, the auction would have included six 400 MHz frequency bands. A possible benefit of auctioning frequency bands of less than 800 MHz is that an enterprise could acquire a smaller amount of frequencies in case it does not require a larger amount for its operations. Also, it would have meant that more than three enterprises could have won frequencies at the auction.

Usability-wise, a 800 MHz band is better than a 400 MHz band, and it enables provision of faster broadband services. In addition, dividing auctioned frequencies into blocks smaller than 800 MHz could mean that enterprises would be unable to acquire a continuous frequency band, which would hamper the efficient use of the frequencies.

According to subsection 2, a maximum of one 800 MHz frequency band could be allocated to any individual enterprise or organisation. Therefore these frequency bands may theoretically be allocated to a maximum of three operators. Broad, licence holder-specific frequency bands would be particularly well suited for fast data transmission. Also, enterprises that already hold lower frequencies could use them together with the frequencies to be auctioned at this time.

Section 3, Auction format

This section provides for the auction procedure to be used. Under section 11 of the Act on Electronic Communications Services, the auction is arranged by the Finnish Transport and Communications Agency. The auction shall be unbiased, clear, open, non-discriminatory and technology and service neutral. The auction procedure to be used is to be provided for by Government Decree. Under the provisions of the Act, the auction may be conducted using an electronic auction system. The system must be suitable for the selected auction procedure, and fulfil the special requirements related to reliability and information security. By virtue of the Act, the auction may include one or more rounds with ascending bids, and all bids submitted in the auction are valid until the end of the auction.

The Finnish Transport and Communications Agency will conduct the auction over the public Internet using electronic software acquired through an international competitive tender.

Under this section, all frequency bands are to be auctioned off at once through multiple rounds of bidding with ascending bids. This means applying the Simultaneous Multiple-Round Auction (SMRA) model where the price keeps rising. Bidding will be opened at the starting price specified in section 4 of the Decree. Detailed provisions on the auction procedure will be issued in a regulation issued by the Finnish Transport and Communications Agency, as per section 12 of the Act on Electronic Communications Services.

The Simultaneous Multiple Round Auction model is particularly well suited to the auctioning off of the 26 GHz spectrum. This model has also been used in all of the previous frequency auctions in Finland, and it is familiar to both the party responsible for arranging the auction and enterprises that have participated in one or more previous frequency auctions.

Section 4, Starting price for frequencies

This section provides for the starting price for the frequency bands in the auction.

The proposed starting price in the auction is EUR 7 million per each 800 MHz frequency band.

Therefore, if all frequencies are sold, the auction should return a revenue of at least EUR 21 million.

The frequency band is not suitable for building a comprehensive geographical coverage. On the other hand, enterprises that already hold lower frequencies can use them together with the frequencies to be auctioned at this time. The auctioned frequencies enable ultra-fast wireless connections, provided that the telecommunications operators hold a sufficiently wide frequency band.

Pricing in the auction will probably also be affected by the provisions of section 2 concerning the maximum number of frequency bands to be allocated per enterprise, which ensure that there is a sufficient amount of frequency bands to three enterprises.

Therefore, setting the starting price for the auction as close to the actual value of the frequency bands as possible ensures that even if there is no significant competition for acquiring frequency bands in the auction, the participants will nevertheless pay fair compensation for this limited and valuable commodity. In the previous frequency auctions in Finland, the actual prices paid have not varied significantly from the starting price.

The purpose of the starting price is to ensure that no operator may acquire frequency bands at a cost significantly lower than their actual market value. The starting price was set taking into account the characteristics of the frequency band, the price paid for similar frequencies around the world (South Korea, Italy and Taiwan), as well as the prices paid in the previous frequency auctions in Finland (800 MHz, 700 MHz and 3.5 GHz).

In the assessment of the starting price, prices in the comparison market were compared with the actual prices in Finnish auctions. The 2018 auction of 3.5 GHz spectrum generated a revenue of approximately EUR 77 million for the Government, the 2015 auction of 700 MHz spectrum approximately EUR 66 million, and the 2013 auction of 800 MHz spectrum approximately EUR 108 million. Due to high construction costs, among other things, the value of the frequencies to be auctioned at this time has been assessed lower than the previously auctioned frequencies.

Section 5, Participation fee

This section provides for the fee payable by any enterprise wishing to participate in the auction. The purpose of the participation fee is to cover the costs of the auction.

Signing up for the auction entails liability for the participation fee. Under section 286 of the Act on Electronic Communications Services, enterprises signing up for the auction shall pay a participation fee to cover the administrative costs that will accrue to the Finnish Transport and Communications Agency for arranging the auction. The Act specifies that the participation fee is non-refundable, even if the enterprise or organisation does not bid in the auction. The Finnish Transport and Communications Agency will issue a decision on the payment of the fee. The amount of the participation fee is to be provided for by a Government Decree.

The Finnish Transport and Communications Agency incurs administrative costs for arranging the auction. These include, for example, the cost of procuring the auction system and the personnel costs directly associated with the auction. The Finnish

Transport and Communications Agency will incur an estimated EUR 120,000 in non-recurring administrative costs for arranging the auction.

Under this section, enterprises signing up for the auction shall pay a participation fee of EUR 40,000 to cover the administrative costs that will accrue to the Finnish Transport and Communications Agency for arranging the auction.

Section 6, Licence fee

Under section 287 of the Act on Electronic Communications Services, a telecommunications operator that has been granted a network licence in an auction shall pay a licence fee to the licencing authority. The licence fee is the highest valid bid in the auction. The licence fee is payable in instalments over the licence period. The payment schedule is to be provided for by Government Decree. The Finnish Transport and Communications Agency will issue a decision on the payment of the fee.

Under this section, the licence fee is to be paid in five equal annual instalments as of the issuing of the licence. Dividing the fee into equal instalments avoids the typically front-loaded cost structure of an auction process. The revenue from the auction will be recognised in a separate revenue item, item 11.19.04 (Certain communications payments), in the central government budget.

Section 7, Entry into force

This Decree will enter into force on 15 April 2020.

Entry into force of the Decrees

Both the Government Decree on the amendment of the Government Decree on Radio Frequency Usage and the Frequency Plan and the Government Decree on Radio Spectrum Auctions in the 25.1–27.5 GHz Spectrum will enter into force on 15 April 2020. These Decrees should enter into force as soon as possible to allow the frequency auction to be held in June 2020.

Preparation

The draft Decrees have been prepared in the Ministry of Transport and Communications in cooperation with the Finnish Transport and Communications Agency.

The Ministry of Transport and Communications submitted the Decrees for an open and extensive round of statements to the key authorities, stakeholder organisations, telecom operators, other operators in the secrtor and parties representing frequency band user groups and consumers. They were open for comments from 6 February to 6 March 2020 in the Lausuntopalvelu.fi statement service. In this connection, comments were invited on the draft notice of invitation to apply for network licences, which outlined the proposed conditions for the network licences to be auctioned and the detailed schedule for the

auction. The Ministry of Transport and Communications arranged an open hearing on 12 February 2020. Various operators have presented their views to the Ministry also at one-on-one meetings.

A total of 55 statements were received by the deadline. Several statements were signed by several parties. A summary of the statements is available at: https://valtioneuvosto.fi/hanke?tunnus=LVM045:00/2019.

Generally, the attitude towards the deployment of the spectrum was positive, and the statements emphasised the significant role of the deployment for solutions based on 5G technology. A majority of the submitting parties (approximately 49 parties) agreed with excluding a part of the spectrum from the auction and reserving it for local networks. The national telecom operators were the only ones to support the view that the entire frequency band should be auctioned for national use.

A few parties stated that the licence holders of the frequencies to be auctioned should be obligated to lease their frequency capacity. According to national telecom operators, this type of obligation should not be placed on the spectrum to be auctioned.

In their statements, the national telecom operators emphasised that the restrictions due to product development, testing and teaching purposes should only apply to frequencies allocated to local use. Nokia, among others, stated that frequencies for product development, testing and teaching purposes should also be allocated within the frequencies to be auctioned and above the frequency range to be auctioned to promote Finland's aim to develop the 5G technology.

Based on the submitted feedback, the Decree will provide for restrictions due to product development, testing and teaching purposes regarding the 24.25–25.1 spectrum to be excluded from the auction and allocated to local networks to provide the users of frequencies allocated to product development, testing and educational purposes reasonable assurance on the availability of these frequencies. A frequency band allocated to local networks enables the use of both narrower frequency bands and the unified 400 or 800 MHz frequency bands to product development, testing and educational purposes in certain geographical areas listed in the Decree. Restrictions related to product development, testing and educational purposes within the 25.1–27.5 GHz spectrum to be auctioned or above this spectrum would not be included in the Spectrum Decree, but the Finnish Transport and Communications Agency could, in individual cases, grant radio licences in the 27.5–27.9 GHz spectrum.

According to national telecom operators, the starting price should be lowered. The telecom operators also noted the need for decreasing administrative frequency fees but these are not addressed in the Decrees to be issued. The Department of Economics of the Aalto University considered the specified starting price to be too low.

Sähköherkät ry, Turvallinen digimurros network, Sitra and a few private individuals brought up issues related to the radiation safety of the technology. The statements called for more detailed studies of the health and environmental impacts of mobile radiation before progressing further. With regard to radiation safety issues, the competent Radiation and Nuclear Safety Authority stated that it did not have any objections based on radiation safety. Radiation safety of the mobile network within the frequency range in question is ensured by radiation legislation. According to current knowledge, there are no adverse health effects when the exposure does not exceed the specified threshold values.

At the same time, the Finnish Transport and Communications Agency submitted an order (64 C M) on the auction procedure for network licences within the 25.1–27.5 GHz spectrum for comments in the Lausuntopalvelu.fi statement services. It includes more detailed regulations on registering for the auction and the selected auction procedure. The Finnish Transport and Communications Agency also submitted the technical licence terms for radio licences within the 25.1–27.5 GHz spectrum for comments.

Proposal

The Ministry of Transport and Communications proposes that the Government adopt the Government Decree on the amendment of the Government Decree on Radio Frequency Usage and the Frequency Plan, and the Government Decree on Radio Spectrum Auctions in the 25.1–27.5 GHz Spectrum as specified above.